

Oregon

Summary and Analysis

Oregon is considered a leader in energy efficiency requirements, green buildings, and related financing mechanisms. Among the policy innovations at the state level are the following:

- Oregon is conducting a first-of-its-kind pilot program for five years to offer income for home generation of power through a solar feed-in tariff. The program rewards home-energy production instead of subsidizing installation, as in other states.
- Oregon's Business Energy Tax Credit (BETC) provides a variety of mechanisms for financing green businesses and has resulted in the attraction of businesses to the state. It offers credit to those who invest in energy conservation, recycling, renewable energy generation, and less-polluting transportation fuels.

Portland, the largest city in Oregon, is known for its leading green-building ordinance, light-rail system, urban growth boundary, and unified city government office of planning and sustainability. Increasingly, the various efforts to green the city have translated into green job development. Among the most innovative aspects of Portland's initiatives and policies are the following:

- Clean Energy Works Portland (CEWP) develops weatherization and energy efficiency retrofit projects for up to 100,000 homes in the greater Portland area, with on-bill financing. The program has been such a successful model that it is being scaled up to the statewide scale with Clean Energy Works Oregon (CEWO).
- The Community Workforce Agreement requires hiring and training from a diverse workforce for green jobs under CEWP, with features including a "living wage" requirement.
- The green-buildings policy for city-owned buildings requires new construction and major renovations of all city facilities to meet the LEED gold standard. The policy also ensures that existing buildings meet the required LEED EBOM Silver.
- The city has sponsored local manufacturing. Oregon Iron Works is building the country's first streetcar made by an American firm in over fifty years. This development has attracted national attention as an example of unionized, green manufacturing.
- Portland has also analyzed its industrial strengths and developed a plan for green-jobs growth and business development that matches its unique industries.

General Policy Background

Energy Goals. In 2007, the State of Oregon approved an ambitious, “25 by ‘25” renewable portfolio standard, that is, 25 percent of the state’s electricity from large distributors must come from renewable energy sources by 2025. The Oregon Renewable Energy Act (SB 838C), signed into law on June 6th, 2007, includes stepwise goals of 15 percent of total state energy from renewables by 2015 and 20 percent by 2020. The goal of the legislation is to create a stable market for new renewable energy development. It is expected to support the development of 1,500 average megawatts of new renewable energy, enough energy to meet the needs of 1.25 million average Pacific Northwest homes. Climate change legislation passed that same year on Global Warming Actions (HB 3543) codifies the greenhouse gas (GHG) reduction goals of a 10 percent reduction of 1990 levels by and 75% below 1990 levels by 2050. (EPA 2008).

Previously in 2005, the state government announced the Oregon Renewable Action Plan (REAP). REAP’s goal is to encourage and accelerate the sustainable production of energy from renewable sources, stimulate economic development (which focused on development in rural parts of the state), and generally improve the environmental future of the state. Under the plan, utilities are required to make renewable energy options available to customers who want to support the building of more renewable-energy mechanisms. Both Portland General Electric and PacifiCorp have run successful programs that are often at the top of lists naming top programs in the country (Citizen’s Utility Board 2010). The short-term goals of REAP for electricity generation were as follows:

- 1) 300 megawatts of new wind energy resources developed with 10 percent coming from community or locally-owned wind energy projects;
- 2) implementation of effective solutions to the transmission capacity bottleneck(s) between eastern and western Oregon in order to provide access from renewable and other resources in eastern Oregon to load centers;
- 3) a “stable-price” renewable-energy product offered by all Oregon utilities;
- 4) 500 additional solar photovoltaic electric systems installed in the years 2005 and 2006 for a total of about one megawatt;
- 5) five megawatts of new biogas generation facilities obtained from wastewater treatment, dairies, and landfills;
- 6) twenty-five megawatts of new biomass-fueled electric generation built or under construction by 2006, in addition to the aforementioned five megawatts of biogas facilities;
- 7) twenty-five megawatts of new combined heat and power (CHP) generation systems that are at least 10 percent better than the state standard for siting exemption built or under construction by 2006;
- 8) 200 five-kilowatt fuel cells;
- 9) twenty megawatts or more of geothermal electric generation to be in the process of being developed by 2006;
- 10) one to four megawatts of new environmentally sustainable hydroelectric generation on line or in the process of being developed (primarily irrigation piping channels) by 2006; and
- 11) an assessment of the feasibility of a renewable portfolio standard for the state completed by 2006.

The long-term goals of REAP (2007-2025) include goals for electricity generation as well as for transportation fuels. Requirements include renewable generation to meet 10 percent of Oregon's total load by 2015, roughly about 1 percent growth in renewable generation per year increasing to or to exceed 25 percent of the load by 2025 and 25 percent of state government's total electricity needs to be met by new renewable energy sources by 2010 and 100 percent by 2025.

Under REAP, ratepayers can also voluntarily purchase renewable energy certificates (RECs) to support renewable-energy projects and help them to get built. RECs are registered to confirm that certificates are coming from actual projects and ensure that RECs are not sold more than once. REAP also has various goals for the state government's sustainable procurement policies. REAP established the Renewable Energy Working Group to oversee the goals and to prepare regular progress reports to the governor's office and stakeholders.

The state has also developed standards that have enabled it to be ranked as the leader in net metering in the country (Network for Energy Choices 2009), and it has set an energy-efficiency resource standard of 20 megawatts for electricity. The Oregon Energy Efficiency and Sustainable Technology Act of 2009 (EEAST, HB 2626A) includes provisions for energy audits and an energy savings plan. It also include goals for weatherizing existing residences and small businesses, production of renewable energy, increasing local demand for energy efficiency in order to develop the state's green building industry cluster. Once implemented, the cost of the plan is deducted from the owner's future energy bills. EEAST modifies the Oregon Department of Energy's Small Scale Energy Loan Program, which it authorizes to accept dollars from many different sources, both public and private, for loans and grants.

HB 2181, a bill related to energy conservation improvements in existing buildings, authorizes local governments to establish local improvement districts within which owners on record of qualifying residential and commercial property may receive loan financing for energy-efficiency and renewable-energy projects for the purpose of paying cost-effective energy improvements to property. It also authorizes the State Department of Energy to make loans to finance cost of energy-efficiency improvements to existing real property in local improvement districts.

Public Benefits Fund. The state's Public Purpose Fund provides about \$70 million annually in revenue for the Energy Trust of Oregon, which funds renewable-energy, energy-efficiency, and low-income energy-assistance programs (DSIRE 2010). Created as part of the electricity restructuring legislation (SB 1149) in 1999, the Energy Trust of Oregon combined the separate energy-efficiency offices that had previously existed in each utility into one office. The change made the process of running energy-efficiency programs much more efficient and cheaper for ratepayers. It also removed the inherent conflict of interest among utilities regarding energy efficiency: encouraging customers to use less of the product (energy) that they produce and sell. Energy goals, the public purpose fund, and green buildings are the essence of Energy Trust (Menashe 2010). Investor-owned utilities supply the Energy Trust with monies from the public purpose fund to support energy-efficiency projects. The Energy Trust works upstream with manufacturers and distributors for energy-efficiency products, and it also works downstream by creating incentives for energy efficiency (Smith 2010). By developing contracts

and setting standards, the process creates uniformity in the energy-efficiency market. The Energy Trust also serves as an information clearinghouse to residents, business, agricultural communities, manufacturing sector and food storage facilities. In that role it provides technical assistance, package solutions as well as cash incentives for weatherization, heating and cooling upgrades, appliance standards, lighting, and energy-efficiency and renewable-energy technologies such as solar electric and solar water heat, small wind, and hydroelectric. Not only has the Energy Trust raised awareness of energy efficiency in the commercial, residential, business sector, but has generated a lot of renewable energy and energy-efficiency savings which translates into green jobs in the clean-energy sector for Oregon (Menashe 2010)

Oregon's Business Energy Tax Credit (BETC) provides a variety of mechanisms for financing green businesses and has resulted in the attraction of businesses into the state (Trummer 2010). The BETC, administered through the Oregon Department of Energy, gives a financial reward to those who invest in energy conservation, recycling, renewable energy resources, and less-polluting transportation fuels. Trade, business, or rental property owners who pay taxes for a business site in Oregon are eligible for the tax credit and must use the energy conservation or renewable energy equipment for the project, or they can lease it the equipment for use at another site in Oregon. The tax credit is 35 percent of eligible project costs (the incremental cost of the system or equipment that is beyond standard practice) and 50 percent of the eligible project costs for 1) high efficiency combined heat and power, 2) renewable energy resource generation, or 3) renewable energy resource equipment manufacturing facilities. A project owner also can be an Oregon non-profit organization, tribe, or public entity that partners with an Oregon business or resident who has an Oregon tax liability. This can be done using the pass-through option, which allows a project owner to transfer their BETC project eligibility to a "pass-through partner" for a lump-sum cash payment (Oregon Department of Energy 2010). The BETC has been structured in such a way that it has allowed some firms to "double dip." Because it was popular, it ran into budgetary limits, and consequently state legislation in 2010 restructured the tax credit to correct some of the problems. The changes include a tiering category system for the renewable energy aspect of the credit in which projects are put in queue and there are limited available funds in each category. The legislature also established an overall program cap for BETC (Trummer 2010).

Green-Buildings Policy. Oregon has had energy-efficiency provisions for state government buildings since 1991. In 2001, the mandated State Energy Efficiency Design Program (SEED) expanded those provisions to include a goal that all new state government buildings exceed the existing energy-efficiency code by 20 percent, and that all existing government buildings reduce their energy consumption by 20 percent against a 2000 baseline. The BETC also provides 35 percent credit on investment to owners of LEED-certified buildings where the size of credit is matched to the building size and level of LEED certification. The state Department of Energy administers the program and provides technical expertise on each project, helping agencies identify and design the most cost-effective energy conservation measures.

Clean Energy Works Oregon (CEWO) is based on the notable program first piloted in Portland. Currently in the planning stages, CEWO will operate under the Portland Bureau of Planning and Sustainability as its fiscal agent. The plan is to start with the upgrade of 6,000 residential units around the state in energy efficiency (Smith 2010). Similar to Clean Energy

Works Portland (described below), CEWO will oversee the training, weatherization, and heating improvements in homes throughout the state. Financed initially with ARRA funds, payment is made via a line on the homeowners' utility bill that is paid into a revolving loan fund and is repaid on the homeowner's utility bill over fifteen to twenty years. CEWO will offer homeowners low-cost financing for energy-efficiency home improvements, like new insulation or the installation of a high efficiency furnace or water heater. As in the Clean Energy Works Portland model, participants in CEWO will receive the assistance of an "energy advocate" throughout the process to help make decisions about which upgrades and financing options make sense. Low-income households pay the lowest interest rate, with higher-income households able to lower their interest rate by electing more comprehensive energy retrofits. Also like Clean Energy Works Portland but on the state level, the program will provide a range of career path for opportunities for Oregonians in the clean-energy sector and is also focused on historically disadvantaged communities. According to Derek Smith, formally of Portland's Bureau of Planning and Sustainability, now to head CEWO, CEWO is catalyzing more than energy-efficiency work, roofing, siding, and windows; it is also integrating solar and other technologies into residential and some commercial buildings (Smith 2010). In this, CEWO is also building a local supply chain of manufacturers, installers, contractors and inspectors. The key benefit of CEWO is in building demand within Oregon for Oregon's workforce in the clean-energy sector.

Green Jobs Training. As of 2008, 3 percent of Oregon's workforce fell under the category of green jobs. The three industries with the most green jobs (47 percent of the total 3 percent of all jobs in Oregon) are construction, wholesale and retail trade, and administrative and waste services (State of Oregon 2010b). The five occupations with the most green jobs (27 percent of the three percent of total jobs) are carpenters, farm workers, truck drivers, hazardous materials removal workers, and landscaping and grounds keeping workers. Green jobs training programs are available from community colleges, unions, and nonprofit organizations.

In 2009, HB 3300 was passed to deepen the state's clean-technology efforts by establishing a green jobs workforce development plan and training programs. HB 3300 instructs the State Workforce Investment Board to develop a plan for the promotion of green jobs, requires the plan to identify high-demand green industries and promote certain workforce development activities to promote growth of green jobs and to define terms related to green jobs and green economy. HB 3300 also requires the Economic and Community Development Department to develop criteria for and make recommendations about promoting green industries, technology and innovation. The state received \$6 million in ARRA funding in 2010 for green jobs training programs.

The Oregon Economic Revitalization Team, housed within the governor's office, acts as a liaison between state agencies, local governments and other partners to facilitate communication about regulatory barriers and challenges. The Economic Revitalization Team develops mechanisms to increase coordination among the departments and agencies that have overlapping regulatory authority on common local government programs, and it proposes ways to create regulatory efficiencies and problem solve during the rulemaking activities. The priorities include "promoting innovative and coordinated approaches to economic and community development, particularly those that solve problems and create public benefit by integrating land use, transportation, infrastructure, and natural resource planning to achieve

sustainable economic development”; and “supporting state and local government efforts to grow renewable energy and the green jobs portfolio throughout Oregon” (State of Oregon 2010a).

Clean-Energy Industries

General Background. The numerous laws and regulations discussed above have created local demand to develop the state’s green building industry cluster. As discussed, the BETC provides a 50 percent tax credit for new renewable energy facilities up to \$20 million, with \$400 million in tax credits. Between 2006 and 2009, the state spent nearly \$400 million in tax credits, making it one of the leading states for clean-tech industry growth (Knutson 2009).

Oregon has a number of offices and programs that coordinate economic development and clean energy industry development that go beyond training (as mentioned in the Green Jobs Training section) to build on existing industrial strengths as well as to promote emerging areas of research and development in the clean energy and green building sectors. To support clean-energy companies, in 2007 the state legislature established the Oregon Built Environment and Sustainable Technologies Center, a nonprofit organization that develops the research infrastructure in the environment and renewable energy fields. Programs such as the University of Oregon’s Energy Studies in Buildings Laboratory, the Oregon State University Wood Innovation Center, and the Oregon Institute of Technology Renewable Energy Center have amplified the knowledge base for clean-energy and technology industries. Oregon Solutions, a program of the National Policy Consensus Center at Portland State University, has fostered the development of over sixty energy-efficiency projects around the state.

Biofuels. The 2005 Renewable Action Plan includes targets for biofuels for the state’s vehicle fleets, and in 2007 the state government approved a renewable fuel standard that mandated blends of ethanol in gasoline and biodiesel in diesel fuels (HB 2210). The legislation provides tax incentives for the producers, refiners, and consumers of biofuels. The mandate expands the property tax exemptions for facilities producing ethanol, biofuel, or certain fuel additives; allows a taxing district to opt out of exemptions; limits the period of time for which new facilities may claim exemption; creates a tax credit; establishes renewable fuel use standards; prohibits the sale of gasoline that contains certain additives; and modifies energy facility siting requirement exemptions. The Colorado-based ZeaChem is building a large cellulosic biofuel refinery in the state. However, because the majority of biofuel production is corn-based ethanol, the industry remains concentrated in the Midwestern and Southern states (Trummer 2010).

Smart-Grid and Building Technologies. Oregon is poised to develop smart-grid technology strength, partly because of its location between Seattle and Silicon Valley. In addition, the state has a traditional strength in the lumber and wood products industry that is gradually being transformed into a green building industrial cluster (Allen 2006). The Oregon Energy Efficiency and Sustainable Technology Act of 2009 (EEAST) gives home and business owners a state-designated project manager for an energy audit and energy savings plan of their properties. The law will help produce local demand to develop the state’s green building industry cluster. Some of the businesses and other organizations in this industry include the Pacific

Northwest National Laboratory, Cascadia Green Building Council, Columbia Forest Products, Gerdlin/Edlen, Interface Engineering, Serra, Boora, ZGF, Brightworks, and Northwest Research. The state's strength in green buildings is further supported by the university research facilities mentioned above.

Solar. Oregon has a half dozen solar photovoltaic manufacturers (Peak Sun Silicon, Solaicx, Mr. Sun Solar Enterprises, PV Powered, Solar World and Sanyo Solar), and the solar manufacturing industry appears to be growing. The German company Solar World built a large manufacturing facility in Hillsboro, where Intel is located. The large chip manufacturer has also made investments in the solar industry. Solar energy research is also conducted at the state's four research universities in collaboration with the Pacific Northwest National Laboratory and the Oregon Built Environment and Sustainable Technologies Center (Kleiner 2009). The state-sponsored center also has formed the Oregon Support Network for Research and Innovation in Solar Energy.

In May 2010, Oregon revealed a five-year pilot program to offer income for home generation of power. Under this program, the first of its kind in the nation, residents who install solar panels are eligible for premium-rate reimbursement from their utility companies based on their power generation for a period of fifteen years. The program rewards home energy production instead of subsidizing installation, as is done in other states. The program relies on revenue from increased electricity rates from customers of Portland General Electric and Pacific Power and Oregon customers of Idaho Power to finance the project rather than relying on state tax credits. There is some hesitation with respect to the program; one of the factors behind the hesitation is that residents fear that the increased fee to customers will make utility bills unaffordable. The Public Utilities Commission has the ability to cap the program before the fifteen megawatts are reached if the overall impact on rates is too high (Trummer 2010). The pilot program is overseen by the Oregon Public Utility Commission and is limited to a maximum 25 megawatts of production, roughly enough energy to serve 2,500 homes (Read 2010).

Oregon's Built Environment and Technologies Center (BEST)'s faculty are located at Portland State University, Oregon State University, and University of Oregon and are involved in solar energy research. Oregon BEST helps advance solar research that ranges from cutting-edge thin-film technologies and associated materials to exploring how green roofs and solar panels might co-benefit renewable energy and energy-efficiency projects. Recently established solar energy shared-user research labs, the Photovoltaics Laboratory of the Oregon Support Network for Research and Innovation in Solar Energy (Oregon SuNRISE) at the University of Oregon, and the Oregon Process Innovation Center (OPIC) for Sustainable Solar Cell Manufacturing at Oregon State University were funded from Oregon BEST (Built Environment and Sustainable Technologies Center 2010).

The Oregon Solar Energy Industries Association (OSEIA) provides training and information resources to professional about tax credits, incentives, feed -in tariffs and utility information. For students, OSEIA offers volunteer opportunities and research links. They also act a clearing house of contractor information, incentives, tax credits and training for energy consumers.

Transportation and Energy Storage. In 2008 the state introduced the country's first standards for electric vehicle charging stations, and Nissan followed the announcement with a decision to introduce its electric vehicles in that state. The state also introduced a \$1,500 electric vehicle tax credit. The state tax credit for plug-in hybrid electric vehicle (PHEV) and battery electric vehicle (BEV) is up to \$1,500. There is a federal tax credit of up to \$7,500 (Trummer 2010). Although the state is home to the electric motorcycle manufacturer Brammo, and light-rail manufacturing in Portland, there is no energy storage and transportation group of similar size to those in the Midwest and New York.

Wind. The American Wind Energy Association (2009) reports that Oregon was fifth in the country in installed wind capacity at the end of 2009. After the first quarter of 2010, Oregon was ranked fourth in installed capacity wind capacity. In 2002, the state attracted the Danish company Vestas to locate its headquarters in the state. However, much of the manufacturing of the new wind turbines has taken place outside the state, and Oregon has yet to transform the advantages into a strong wind manufacturing industry.

Portland

Sustainability Plans. Portland is often recognized as a leader in local sustainability initiatives, and it has had a sustainability plan since 2000. The Portland City Council has adopted an economic development strategy that prioritizes sustainability as a key economic engine of the Portland region. The city has also merged the sustainable development and planning functions into the single Bureau of Planning and Sustainable Development. The twenty-five-year strategic plan for the city, called the Portland Plan, aligns government spending from the U.S. Department of Housing and Urban Development and the Department of Energy.

Portland's Climate Action Plan, recently passed in 2009, has eight focus areas: buildings and energy, urban form and mobility, consumption and solid waste, urban forestry and natural systems, food and agriculture, community engagement, climate change preparation including green infrastructure, and local government operations (City of Portland and Multnomah County 2009). In addition to energy savings and energy self-sufficiency, the Climate Action Plan will create local jobs because money previously spent on fossil fuels will stay in Portland for energy-efficiency upgrades and renewable energy projects like home insulation, lighting retrofits, solar panels, engineering, and design and construction. The plan also aims to improve social equity by ensuring that communities most vulnerable to climate change are given priority for green jobs, healthy local food, energy-efficient homes and affordable, efficient transportation.

The Solarize Portland project, another initiative of the city, is focused on bulk buying of non-utility scale solar products for quadrants of the city of Portland. According to Debbie Menashe of the Energy Trust of Oregon, solar installation contractors are coming from all over to work in the city (Menashe 2010). The project enables a group of people from the city to get together to invest in solar electric systems for their homes. They are educated with free workshops offered by the Portland Bureau of Planning and Sustainability. They then work with the Energy Trust of Oregon to get an approved, state "tax credit certified" solar contractor chosen by the project coordinators. The contractor installs solar panels for all participants, and

usually participants receive a bulk-purchasing benefit or price break. Then, participants receive their free solar site-assessment with the contractor, including costs allowing them to make the best decision for their community. If a decision is made to buy the contractor coordinates equipment purchases and the install schedule so as to conserve resources. After installations, inspections are required. Paperwork is submitted to Energy Trust of Oregon for the appropriate state and federal tax credits (Solarize Portland 2010).

Green-Building Initiatives. Portland continues to be recognized as a world leader in green building. Jurisdictions from all over the country use Portland's green building, climate change, and sustainability policies as models. Clean Energy Works Portland (CEWP) was a successful pilot project of the City of Portland in collaboration with Multnomah County, Shorebank Enterprise Cascadia, Energy Trust of Oregon, NW Natural, Pacific Power, Portland General Electric, Worksystems Inc., and Green For All. The project offered homeowners access to low-cost financing for energy-efficiency home improvements such as new insulation or the installation of a high efficiency furnace or water heater. The project is the nation's only consortium that offers on-bill financing for clean-energy upgrades and retrofits to customers. In doing so, it addresses the common hindrance to sustainability: the lack of financing for clean technology upgrades for residential, commercial, and industrial buildings and facilities.

CEWP oversees the training, weatherization, and heating improvements in homes around the Portland metro area. The program was financed initially with ARRA funds with on-bill repayment. CEWP participants receive the assistance by a qualified Energy Advocate to help decide on upgrades and financing option. Thirty homes participated in the early phase of this pilot from June through August 2009. Approximately 100,000 homes are planned for CEWP, spread out over five phases (Jacobs 2010). CEWP is a simple and easy program that combines the loan processing, energy assessment, and contractor selection. Low-income households pay the lowest interest rate, with higher-income households able to lower their interest rate by electing more comprehensive energy retrofits. A core component of the program is its commitment to creating quality jobs and advancing social equity. The project has been so successful that it has been federally funded to expand to the state level.

Another model program is the Community Workforce Agreement (CWA), which the city of Portland approved in 2009. The agreement includes a plan to develop weatherization for up to 100,000 homes that will also create green jobs for low-income workers. The family-supporting jobs (including a 'living wage' and health insurance requirements) will include diversification of the workforce. The Community Workforce Agreement was a product of successful collaboration between a broad base of community stakeholders to help ensure equity for women, people of color, and other historically disadvantaged or underrepresented groups in the implementation of Clean Energy Works Portland. The Community Workforce Agreement "living wage" requirement is for those employed through the home energy retrofit pilot program. A unique feature of the Community Workforce Agreement is the establishment of a stakeholder Evaluation and Implementation Committee, which joins the city and the Energy Trust in executing the key elements of the pilot project and making recommendations for the scale-up. The Community Workforce Agreement has the following requirements: at least 80 percent of employees used in the CEWP pilot program be hired from the local work force; workers participating in CEWP retrofits to not earn not less than 180 percent of state minimum wage; ensure that employees on

CEWP pilot project jobs have access to adequate and affordable health insurance as well as assure that the financial burden to small business owners of providing health insurance to their employees is minimized; and historically disadvantaged or underrepresented people, including people of color, women, and low-income residents of the city perform not less than 30 percent of total trades and technical project hours in the pilot. To meet these goals, contractors are asked to have a first source hiring agreement with qualified training programs; businesses owned by historically disadvantaged or underrepresented people make up not less than 20 percent of all dollars in the CEWP pilot project; provisions of resources for continuing education and; and mobility within the clean-energy industries assured through registered apprenticeship and other career pathways trainings in the region (Coalition for a Livable Future et al. 2009).

A third area of leadership is that Portland has gone beyond the usual best practice of a LEED silver standard for public buildings to require a LEED gold standard. The City of Portland adopted a Green Building Policy in 2001 and amended it in 2005 (Resolution Number 36310) to require that all new construction and major renovations of city facilities meet the LEED Gold standard. The rules also require a 30 percent energy savings beyond LEED baseline requirements and LEED EBOM Silver for existing buildings. The policy was further amended in April 2009 (Resolution Number 36700) to incorporate the Green Building Policy and green building principles into all city operations. All tenant improvements to city-owned facilities must be LEED for Commercial Interiors (CI) Silver and/or follow the Bureau of Planning and Sustainability's (BPS) High Performance Tenant Improvement Guide. All new commercial or mixed-use buildings over 10,000 square feet that meet certain requirements (they receive financial assistance from the Portland Development Commission of \$300,000 or more, and the support also equals 10 percent of the total project cost) must achieve LEED silver certification. All new city-owned facilities and existing city-owned buildings installing a new roof must include an ecoroof, which is specified in the policy.

The Green Investment Fund (GIF) was established in 2005 and sponsored by the City of Portland Bureau of Environmental Services, Bureau of Planning and Sustainability, Water Bureau, and Energy Trust of Oregon, Inc. as a 5-year, \$2.5 million competitive grant program that supported innovative green building projects within the City of Portland. A total of \$425,000 was awarded annually from 2005 through 2009 to thirty-six high-performance public and private industrial, multifamily, residential, commercial, mixed-use, and non-profit projects either completed or still in development. The GIF was used to help offset the incremental costs of green building measures or strategies of exemplary and comprehensive green building and site-related project activities that contributed to meeting the GIF goals and priorities.

Green Jobs Training. Under the Portland's Climate Action Plan (CAP) as well as the CWA, 80 percent of employees must be hired from local work force. There are also rules to support the hiring of women and people of color at a living wage. Furthermore, 20 percent of the pilot project work go to contractors who demonstrate particular focus on creating pathways out of poverty and into green jobs for local residents, including through employing social enterprise models and/or partnering with nonprofit community-based organizations (City of Portland 20091, 2009b). In addition to various green jobs training programs available from community colleges, unions, and nonprofit organizations, the Portland-based Oregon Tradeswomen, Inc. and its partners are working to help low-income minorities and women move out of poverty and into

high-wage green collar work in the building, construction, mechanical, technical and utility trades with the Constructing Green Futures Program. The program provides job training, career education and jobs search assistance for low income minorities and women from the Greater Portland region who are “returning to work from unemployment or welfare, single mothers, and those reentering society from incarceration” (Apollo Alliance 2009).

Green Business Initiatives. The city has supported green-business development and job creation through several other significant programs. The PDX Lounge—a virtual as well as actual space for collaboration of local government, businesses, and non-profit organizations to come together to share ideas and research in green industries futures—grew from a consortium of green building companies in 2006 to a broader effort to develop and network the city’s green business sector. Under the city’s Businesses for an Environmentally Sustainable Tomorrow Program, Portland provides a single source of financial and technical assistance. In 2009, the city’s economic development strategy under Mayor Sam Adams was centered on developing green businesses as a way for the city to leverage its previous sustainability efforts into a competitive position in the global economy. The economic development plan included a focus on developing specific clusters of industries. The plan identified four main clusters: clean tech and sustainable industries, activewear and design, software, and advanced manufacturing. Within clean tech, it identified solar, wind, and green-buildings manufacturing. The solar industry would build on connections with the region’s software and information-technology industries, the wind industry would build on corporate headquarters of European firms that are located in Portland, and the green buildings industry would build on the state’s strong wood products industry and current green buildings efforts. In short, the plan is a model of thinking about what kinds of clean-energy businesses make sense in a region (City of Portland 2009a). Another development is the use of stimulus funds that enabled a subsidiary of Oregon Iron Works to build the country’s first streetcar made by an American firm in over fifty years. Local demand was an important ingredient in establishing the company’s manufacturing. The development attracted national attention as an example of unionized, green manufacturing (Wheeler 2009).

The Portland Sustainability Institute was founded in 2009 to bring together “business, higher education, nonprofit, and municipal leaders to drive a set of next generation urban sustainability initiatives” of “community livability, ecological resiliency, and broad-based prosperity” for the Portland metro region. Their expected outcomes include encouragement of business and policy innovation, the enhancement of residents’ quality of life, and restoring cities and neighborhoods in a sustainable way (Portland Sustainability Institute 2010).

Civil Society and Policies

At the state level, Apollo Alliance has played an active role in some of the landmark programs and legislation, including the Community Workforce Agreement and EEAST. The Community Workforce Agreement included a wide range of civil society organizations and businesses that worked together (City of Portland 2009b). Likewise, Clean Energy Works Portland is a collaborative project of the City of Portland, Multnomah County, Shorebank Enterprise Cascadia, Energy Trust of Oregon, NW Natural, Pacific Power, and Portland General Electric, Worksystems Inc. and Green For All bringing public and private sectors together with

benefit to the Portland community in energy-efficiency investments and local development of clean-energy jobs. Another organization that has played a role behind reforms is the Renewable Northwest Project (RNP). Started in 1994, the coalition of public interest groups and energy companies works with local organizations and energy companies to support renewable energy projects and develop green jobs (Renewable Northwest Project 2010).

Acknowledgements

We thank the following for interviews and/or comments on the draft: Andria Jacobs, Debbie Menashe, and Ivo Trummer for interviews, and Mike Grainey (the Renewable Energy Advisor at the Oregon Business Development Department) for a review of the draft, and the hosts and panelists of the Green for All Business Academy conference held in Portland, June 25, for invaluable information and for sharing their experience.

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